

3. The method of claim 1 wherein the mouthpiece includes a mouthpiece chamber having a mouth port for communication with the patient's mouth, an outlet port, and an air supply port, wherein the supplying air pressure to the mouthpiece is through the air supply port.

4. The method of claim 3 wherein the supplying air pressure maintains a flow of air through the air supply port and out of the outlet port.

5.(Thrice amended) A chest wall oscillation method, comprising:  
applying an oscillating compressive force to a chest of a patient, the oscillating compressive force having a steady state force component and an oscillating force component; and  
supplying air pressure to a mouthpiece in communication with a mouth of the patient to provide a steady state air pressure component which at least partially cancels the steady state force component and provide an oscillating air pressure component.

6. The method of claim 5 wherein the steady state air pressure component at least approximately equals a mean pressure exerted on the chest of the patient by the oscillating compressive force.

7. The method of claim 5 wherein the mouthpiece includes a mouthpiece chamber having a mouth port, an outlet port, and an air supply port, and the supplying air pressure to the mouthpiece is through the air supply port.

8. The method of claim 5 wherein the supplying air pressure maintains a flow of air through the air supply port and out of the outlet port.

11.(Twice Amended) A chest wall oscillation method for removal of mucus from a lung of a patient, the method comprising:  
applying an oscillating compressive force to a chest of a patient; and

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~~supplying air pressure to a mouthpiece with a steady state air pressure component in a direction and a magnitude which tends to counteract a steady state force component of the oscillating compressive force.~~

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12. The method of claim 11 wherein the oscillating compressive force includes the steady state force component and an oscillating force component.

13. The method of claim 11 wherein the air pressure includes an oscillating air pressure component and a steady state air pressure component.

14. A chest wall oscillation method for removal of mucus from a lung of a patient, the method comprising:

applying an oscillating compressive force to a chest of a patient to cause displacement of a chest cavity volume, the oscillating compressive force including a steady state force component and an oscillating force component; and

supplying air pressure to a mouth of the patient, the air pressure having an oscillating air pressure component and a steady state air pressure component, the steady state air pressure component having a direction and a magnitude tending to make the oscillating compressive force effective throughout each entire cycle.

15. A method for removal of mucus from a lung of a patient, the method comprising: applying an oscillating compressive force to a chest of a patient; supplying air pressure to a mouthpiece positioned in a mouth of the patient; and coordinating the applying the oscillating compressive force and the supplying air pressure to the mouthpiece to make the oscillating compressive force effective throughout each entire cycle to induce mucus movement.

16. A chest wall oscillation method, comprising:  
applying an oscillating compressive force to a chest of a patient, the oscillating compressive force having a steady state force component and an oscillating force component; and  
supplying an air pressure to a mouth of the patient, the air pressure having a steady state air pressure component and an oscillating air pressure component, the steady state air pressure component opposing the steady state force component applied to the chest.
17. The method of claim 16 wherein the steady state air pressure component is substantially equal to the steady state force component.
18. The method of claim 16 wherein the supplying the air pressure causes no perceived pressure from the steady state force component of the applying the oscillating compressive force.
19. The method of claim 16 wherein the applying an oscillating compressive force causes a pressure on the chest and the supplying air pressure to the mouth reduces the pressure on the chest.
20. The method of claim 16 wherein the supplying the air pressure reduces effort needed for the patient to breathe against the oscillating compressive force.
21. The method of claim 16 wherein the steady state air pressure component is greater than the steady state force component.
22. The method of claim 16 wherein the supplying the air pressure to the mouth causes an increase in volume of lungs of the patient.
23. The method of claim 16 wherein the steady state air pressure component is greater than the steady state force component to cause an increase in volume of lungs of the patient.

24. The method of claim 16 wherein the steady state air pressure component is less than the steady state force component.

25. The method of claim 16 wherein the supplying the air pressure to the mouth causes a decrease in volume of lungs of the patient.

26. The method of claim 16 wherein the steady state air pressure component is less than the steady state force component to cause a decrease in volume of lungs of the patient.

27. The method of claim 16 wherein supplying the air pressure changes an effective atmospheric pressure.

28. The method of claim 16 wherein the oscillating air pressure component is supplied in a synchronized relationship with the oscillating force component.

29. The method of claim 28 wherein the supplying the air pressure enhances oscillations caused by the applying the oscillating compressive force.

30. The method of claim 28 wherein the supplying the air pressure reduces force oscillations caused by the applying the oscillating compressive force.

31. The method of claim 28 wherein the supplying the air pressure substantially cancels force oscillations caused by the oscillating compressive force.

32. The method of claim 28 wherein the oscillating air pressure component exhibits a non-sinusoidal waveform is produced.

C3 33.(Amended) The method of claim 28 wherein the oscillating air pressure component produces a simulated cough.

34. The method of claim 28 wherein the oscillating air pressure component causes an airflow out of the mouth to be substantially zero while simultaneously building up an airway pressure in the chest, followed by the airflow rapidly increasing out of the mouth.

35. The method of claim 28 wherein the oscillating air pressure component causes a first flow airway rate while the patient is inspiring to be lower than a second airway flow rate while the patient is expiring, with the first flow rate and the second flow rate using equal volumes of air.

36. The method of claim 16 wherein the supplying air pressure enhances the effectiveness of the applying the oscillating compressive force.

37. The method of claim 16 wherein the supplying air pressure enhances the function of the applying oscillating compressive force.

38. The method of claim 16 wherein the supplying air pressure causes an airflow in the chest is to be enhanced.

39. The method of claim 16 wherein the supplying air pressure enhances effectiveness of the oscillating force component without increasing the oscillating compressive force.

40. The method of claim 16 wherein the supplying the air pressure further comprises supplying the air pressure through a mouthpiece in communication with the mouth of the patient.

41. The method of claim 40 wherein the mouthpiece includes a mouth port, an outlet port, and an air supply port.

42. The method of claim 41 wherein the supplying the air pressure is through the air supply port to the outlet port and the mouth port.

43. The method of claim 42 wherein a flow of air is maintained through the supply port.

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44. The method of claim 43 wherein the flow of air provides a continuous supply of fresh air for normal respiration.

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45.(Amended) The method of claim 42 wherein a volume of air produced by tidal breathing of the patient moves air from the outlet port into lungs of the patient.

46.(Amended) The method of claim 41 wherein the outlet port is positioned at a distance from the mouthport so that humidified air which flows from the patient during outflow half cycles is returned to the patient during inflow half cycles.

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47. The method of claim 41 wherein the outlet port is about a distance from the mouth port that humidified air travels in a cycle of the oscillating air pressure component.

48. The method of claim 41 wherein the mouthpiece is configured so that air from an outflow half cycle is returned to the patient during an inflow half cycle.

49. The method of claim 41 wherein the outlet port is located at a distance from the mouth port that reduces drying out of airways of the patient.

50. The method of claim 41 wherein the outlet port provides a drain for fluids.

51. The method of claim 40 wherein the mouthpiece includes a mouthpiece chamber.

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52.(Amended) The method of claim 51 wherein the mouthpiece chamber has a configuration which causes humidified air from the patient to be contained substantially within the chamber during a cycle of the oscillating air pressure component.

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53. The method of claim 51 wherein the mouthpiece chamber is configured to contain a volume of air of a cycle.

54. The method of claim 51 wherein the mouthpiece chamber is configured so that air from an outflow half cycle is returned to the patient during an inflow half cycle.

55. The method of claim 51 wherein the mouthpiece chamber reduces drying out of airways of the patient.

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*D11* 56. A chest wall oscillation method, comprising:  
applying an oscillating compressive force to a chest of a patient, the oscillating compressive force having a steady state force component and an oscillating force component;  
supplying an air pressure to a mouth of the patient, the air pressure having a steady state air pressure component and an oscillating air pressure component,  
supplying the steady state air pressure component in relation to the steady state force component applied to the chest; and  
supplying the oscillating air pressure component in a synchronized relationship with the oscillating force component.

57. A chest wall oscillation method, comprising:  
applying an oscillating compressive force to a chest of a patient, the oscillating compressive force having a steady state force component and an oscillating force component;  
supplying a steady state air pressure component to a mouth of the patient in relation to the steady state force component applied to the chest; and  
supplying an oscillating air pressure component to the mouth of the patient in a synchronized relationship with the oscillating force component.